bricks. The cost of building the house in which we stayed in Tarim was $60,000. The exterior of these houses is decorated with blue, green, yellow, and pink, which is not at all unattractive. Interiors are fitted with every up-to-date contrivance, electric light and fans, telephones, ice-plants, and European modern conveniences in the bathrooms, wash-basins with running water and shower-baths. Whereas in Du'an and Shibam there is scarcely a chair to be found, these houses are replete with European furniture, albeit some of a rather florid style. Large and comfortable chairs and sofas decorate the drawing-rooms, and there are English carpets, masses of gilt mirrors, chandeliers and glass cupboards full of marmalade dishes, egg-cups and so on. Living in such houses as these one is struck at every moment with the reflection that there is hardly a thing in the house that has not had to be transported on camel-back over the mountains for six days.

The principal structural detail that the wealthy Seiyids of Tarim and Seiyun have to contend with in their building operations is the difficulty of procuring long enough timber. The *'elb* or *sidr* tree grows to no great height, and although we found *'ariata* trees (*Conocarpus erectus*, Jacq.) growing to 50 feet or more in height some days' journey down the Wadi Maseila, they cannot be transported by camels. The difficulty is being surmounted to some extent by experiments in the making of reinforced concrete pillars of which I saw two in construction at Seiyun. All the work is done by local labour, the travelled Seiyids training their masons. The interior walls of these houses, apart from elaborate decorations such as gold crowns and coloured flowers, are covered with a lime plaster polished with smooth pieces of flint till it resembles marble.

Shibam is remarkable for the height of its houses. The town, which is in the shape of a capital D, contains in a small area 500 houses built on a slight eminence in the Wadi. From a short distance the whole town appears to be one enormous brown mud built construction with a whitewashed top storey and roof. There is no further building room in the town and the only way to have a new house is to buy an old one, knock it down, and rebuild. By general consent, houses in Shibam are not now to be built more than six storeys high in order to avoid overlooking. The only important existing exception to this rule is the Government palace, which is a storey or two higher, but which is in such a position that it overlooks very little. On the top of the six storeys the builder may however erect a roofless seventh which gives him a walled-in roof terrace. The building of this type of house which, when completed, will be 64 *dhirras* or 96 feet high, will cost more than 20,000 dollars. Bigger houses are constructed of two or more houses built together. The life of a house is said to be 200 to 250 years, but the age it reaches depends on the privies being kept dry and cleaned out regularly. If this is not done, the damp saps the lower part of the clay walls and causes splits, necessitating demolition.

Rotation.—Heald states that mixed and overlapping rotations were found in Meifa and Asfal al 'Ain but from careful enquiries, the following appeared to be the most popular:—Lucerne two years, followed by millet and the fourth year tobacco. If tobacco was not sown, the land was planted with another variety of millet. In some villages where lucerne was not grown, the rotation simply included tobacco and millet with sesame the third year. 242

In the Wadi Maseila the fields are constantly changed. One year a certain part of the wadi bed will be cultivated, stick huts and erections for drawing up the water built, and when the crop is harvested the Beduins move on elsewhere, returning again another season. Thus we frequently passed remains of cultivation, disused mud aqueducts and tumbled-down huts.

Diseases.—Heald states, "Excepting for the caterpillar attacking the young millet and tobacco, the crops were remarkably free from pests and disease; I carefully searched for stem borer in the millet but could find none, and also for the scale in the few citrus trees."

Trees and other vegetation of economic importance.

The *'elb* (*Sidr. Zizyphus Spina-Christi*, L.) has many uses. Apart from its blossoms, which are said to give the good taste to the Du'an honey, its fruit called *dōm* is eaten extensively by the Beduins when dates are lacking. The beams, pillars and doors of Hadhramaut houses are made from the timber, and the supply and carriage of the trunks give much employment to the Beduins. It also supplies good firewood. It is a fodder tree, and the leaves are also used as a substitute for soap. 137 262 313 242 [388]

Sār, a palm tree (*Hyphaene thebaica* (L.) Mart.), from which the Beduins gather the leaves called *sāf* for transport to the towns, where they are made into mats, baskets, country string, etc. A popular drink called *nebidh* is also procured from this tree. 137 314 285 272

The long-thorned *sumr* (*Acacia spirocarpa* Hochst.) is perhaps the commonest tree in the Hadhramaut. It is a popular fodder for camels and is likewise eaten by goats. It supplies good firewood and a substance taken from the roots called *futukh* is used by fishermen for greasing their lines in order to make them strong. Another thorny tree, the *geradh* (*Acacia senegal* Willd.), is also a common fodder. Its leaves are used for tanning skins and it is said that the Beduins make a drink from them which they liken to tea. 137 246 314 312 272

The *musht* tree (*Grewia erythraea* Schweinf.), is used extensively for firewood and camel fodder. The leaves of the *ariata* tree (*Conocarpus erectus* Jacq.), which grows in the Wadi Maseila where it sometimes reaches a height of 50 to 70 feet, are dried for fodder, and the timber probably has its economic uses. I was told in Tarim of a large tree growing in Wadi Maseila the strong wood of which is used by carpenters; this may have been the *ariata*. 137 314 246 372

4: Ingrams G-3 (no date) 1935 MM2 Hadhramaut MM2

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HOUSE BUILDING IN THE HADHRAMAUT

W. H. INGRAMS

342 361 363 DURING a recent tour in the Hadhramaut my wife and I collected some notes on the building of houses. Each town in the country has its own individual characteristics. Although the houses of coastal towns are all of the familiar Arab type, built of stone rubble and whitewashed, there is a wide difference in the aspect of the towns themselves. Makalla, for example, is a miniature edition of Zanzibar—tall houses and narrow streets, sometimes not 6 feet across, while Shihr is a town of lower houses, wide streets, and open spaces.

361 342 353 In the Wadi Do'an the tall mud-built houses climb up the banks of the wadi. They are close packed, but it is in their interiors that they merit attention. The colour scheme is black and white and rusty red. Although there is practically no whitewash on the outside of Do'an houses the interiors of the better-class dwellings are spotlessly white. The ceilings of the rooms, which are lofty, are supported by carved pillars of *'elb* [1] wood, and all interior woodwork is of this material. The doors are set in wide heavily carved frames and the whole ornamented extensively with iron nails, 2 inches across the heads, burnished with lead, which shine like polished dollars. It is a modern development of Do'an houses that every room in the house should be provided with its own ablution room, and as a consequence they are really self-contained flats. The entrance door gives on to a passage into the flat, and there is usually not a door into the main living room but a Moorish arch either in the whitewashed wall or of stained *'elb* wood again studded with burnished nails. The ceiling is held up on rafters of *'elb* wood supported by the pillars previously referred to, the mud floor of the next storey above being laid over slats of date wood very attractively arranged in herring-bone pattern.

361 342 177 352 492 493 In Terim the principal feature is the large number of enormous dwelling-houses in a style copied from Malaya but built of mud bricks. The exterior of these houses is decorated with blue, green, yellow, and pink, which is not at all unattractive. Interiors are fitted with every up-to-date contrivance, electric light and fans, telephones, ice plants, and modern European conveniences in the bathrooms. Whereas in Do'an and Shibam there is scarcely a chair to be found these houses are replete with European furniture, albeit some of a rather florid style. Living in such houses as these one is struck at every moment with the reflection that there is hardly a thing in the house that has not had to be transported on camel back over the mountains for six days, and while I mention this it is worth recording that there are sixty cars in Terim itself, each of which has been transported in parts by twelve camels from the coast.

313 333 353 The principal structural detail that the wealthy Seyyids of Terim and Seyyun have to contend with in their building operations is the difficulty of getting long enough timber. The *'elb* or *sidr* tree trows to no great height, and although we found *'ariata* trees growing to 50 feet or more in height some days' journey down the Wadi Maseilah, they cannot be transported by

[1] The commoner Arabic name is *sidr*, *Rhamnus nabeca*.

camels. The difficulty is being got over to some extent by experiments in making reinforced-concrete pillars, of which we saw two in construction at Seyyun. All the work is done by local labour, the travelled Seyyids training their masons. The interior walls of these houses, apart from elaborate decorations such as gold crowns and coloured flowers, consist of a lime plaster polished by smooth pieces of flint till it resembles marble.

Shibam is remarkable for the height of its houses. The town, which is in the shape of a capital D, contains in a small area five hundred houses built on a slight eminence in the wadi. From a short distance the whole town appears to be one enormous brown mud-built construction with a whitewashed top storey and roof. There is no further building room in the town, and the only way to have a new house is to buy an old one, knock it down, and rebuild. The area of land required to build a house 45 *dhirras* in width by 35 in depth (a *dhirra*, or cubit, equals 1·5 foot) will cost 10,000 dollars, and having acquired the land the prospective builder will have to submit the specifications of his house for the approval of a committee of the townspeople who consider the position of windows and of gutters carrying water to the street. Subsequent alterations to a house must also be similarly approved. By general consent houses in Shibam are not now to be built more than six storeys high, in order to avoid overlooking. The only important existing exception to this rule is the Government palace, which is a storey or two higher but which is in such a position that it overlooks very little. On the top of the six storeys the builder may however erect a roofless seventh which gives him a walled-in roof terrace. The building of this house, which, when completed, will be 64 *dhirras* or 96 feet high, will cost more than 20,000 dollars.

The foundations are dug 2 *dhirras* deep below the surface of the earth and 3 *dhirras* wide. Stones are used for the foundation mortared together with a mixture of wood ash and lime. In places where there is any doubt as to the solidity of the ground on which the house is to stand long pieces of *'elb* wood are laid in pairs lengthwise in the foundations. Wood for this purpose must be cut in the winter; if this is done it is said never to rot. The stone foundation or *sās* is continued for 2 *dhirras* above the level of the ground. When the building operations have reached this stage a foundation sacrifice of a goat or sheep is made on the walls. The house is centred round a solid pillar built on the same foundation as the walls. For a house of the dimensions proposed this pillar or *'arus el beit* will be $3\frac{1}{2}$ by 3 *dhirras* wide and of the same thickness from top to bottom. The stairs of the house invariably go up round the *'arus*. The bricks are made of clay mixed with straw, the standard size being $1\frac{1}{4}$ *dhirras* in length by $\frac{2}{3}$ in breadth by 4 *banan* or fingers' widths in thickness. When the clay of the required consistency and thickness for making the bricks has been laid out they are cut out by a wooden frame which makes two bricks at a time. The bricks cost five dollars a thousand.

The thickness of the walls of the first storey is $1\frac{7}{8}$ *dhirras*, of the second $1\frac{1}{2}$, of the third $1\frac{1}{4}$, of the fourth 1 *dhirra*, of the fifth $\frac{3}{4}$, of the sixth $\frac{5}{8}$, and of the seventh $\frac{1}{2}$ a *dhirra*. The bricks are mortared together with wet clay. As *'elb* wood grows to no great length the size of the room is determined to some extent by the length of the pieces available as girders. The girders are usually very short and supported by carved pillars each costing about twenty dollars.

24:Meulen and Wissmann T-3 (1931)1932 MM2 Hadhramaut MM2

water is too far below the surface to serve for the regular irrigation of a plantation, the *nibq* can still live quite well, and even if there is no rain for some years it does not die. The fruit of the *nibq* is as large as a marble and has a stone of the size of a pea. The taste is sour-sweet and refreshing. The fruit can be dried and kept for a long time: it is then crushed fine, stone and all, and with the meal bread is baked or a sort of porridge made. This small fruit is the chief food supply of many in times of drought, and in times of scarcity many Bedouins live on *nibq* and milk and do not look ill on the diet. The shepherdesses carry the *nibqs* with them in small oval, prettily woven baskets.

The wood of the *nibq* tree is reddish-brown and hard, and is used for beams and supporting pillars in the big, many-storied, mud houses of the rich. The branches, thick with thorns, are used in the date plantations when the bunches of dates approach ripeness. They are bound in a wreath round the trunk just below the clusters of fruit, to prevent the dates from being stolen. Finally the green leaves of the *nibq* are also useful: when, during a long drought, there is hardly any more food to be found for the sheep and goats one sees the agile shepherdesses, in spite of their flowing, black garments, clambering up to the top of the *nibq* tree and knocking off the leaves from the branches with long, thin sticks. The flock stands below the tree in expectation of the godsend of food to come. We have only a mild admiration for the *nibq* fruit: one must do much chewing for little nourishment and for little taste.

They also brought us from el-Ḥisī a few handfuls of the roasted larvae of white ants. The taste was not bad; Von Wissmann ate up a whole helping with the result that, shortly afterwards, he had a pain in his throat and could not utter a sound, a condition that lasted for about two hours.

El-Ḥisī lies about 4500 feet above sea-level, and the evenings are quite cold. While there, we examined the bundles of plants which we had already collected and pressed. Great

5:Gt. Brit. . Colonial Office G-3 (1947) 1949 MM1 Aden
Hadhramaut MM2

November. They began testing fish livers for vitamin-A content and also canning samples. Meanwhile several local merchants showed interest and applied for permission to set up canneries and the like. A board to consider such applications and fisheries development in general was set up.

FORESTRY

No true forests exist. Bush products exploited are timber, fuel, charcoal, fibres, gum incense and dragon blood.

Chapter 8: Social Services

EDUCATION

General

Education in common with other services is under the immediate general guidance of the British Agents. The Aden Government Department of Education inspects schools, gives such advice and assistance as is required, and co-ordinates so far as is po[illegible] educational development throughout the whole territory.

Policy

The general education policy in the Protectorates has been to build up self-supporting state Departments of Education as the states become sufficiently advanced for this to be possible. The intention has been that these departments should organise and control a system of village schools, central primary schools and, in the case of the larger states, intermediate schools.

Education Departments

Two such Education Departments are already in existence. One under the Mukalla Government in the Eastern Protectorate, with a Sudanese Director of Education (who is also Education Adviser to the British Agent), and an inspectorate of five local Arab inspectors. The other is at Lahej, 25 miles inland from Aden in the Western Protectorate, where Emir Ali, brother of the Sultan, performs the duties of Director of Education.

Higher Education

There is no higher education in the Protectorate, and there is no likelihood of full secondary education for some years to come. It is thus necessary to send abroad selected scholars who reach the required standard. There is at present one boy at Gordon College in the Sudan, and three there are at secondary schools.